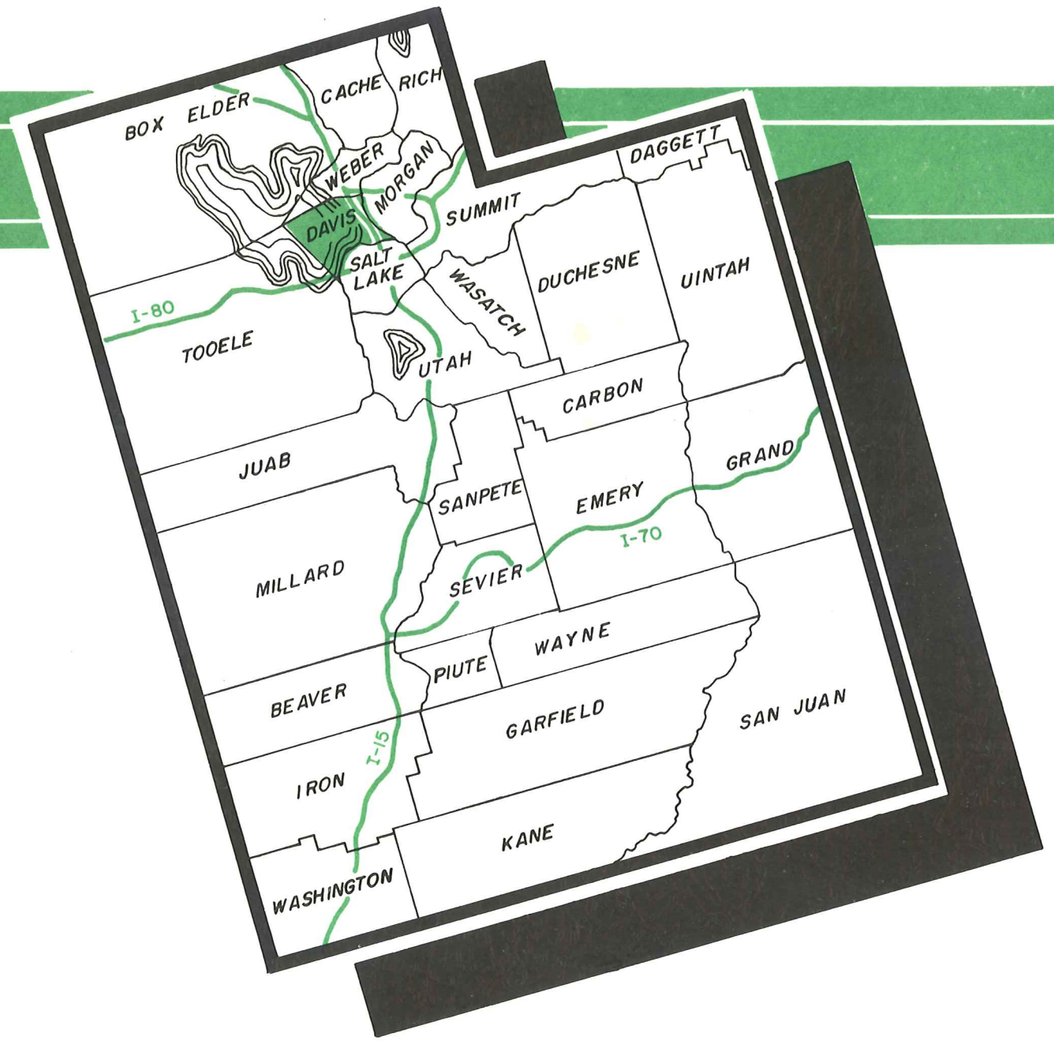
MATERIALS INVENTORY



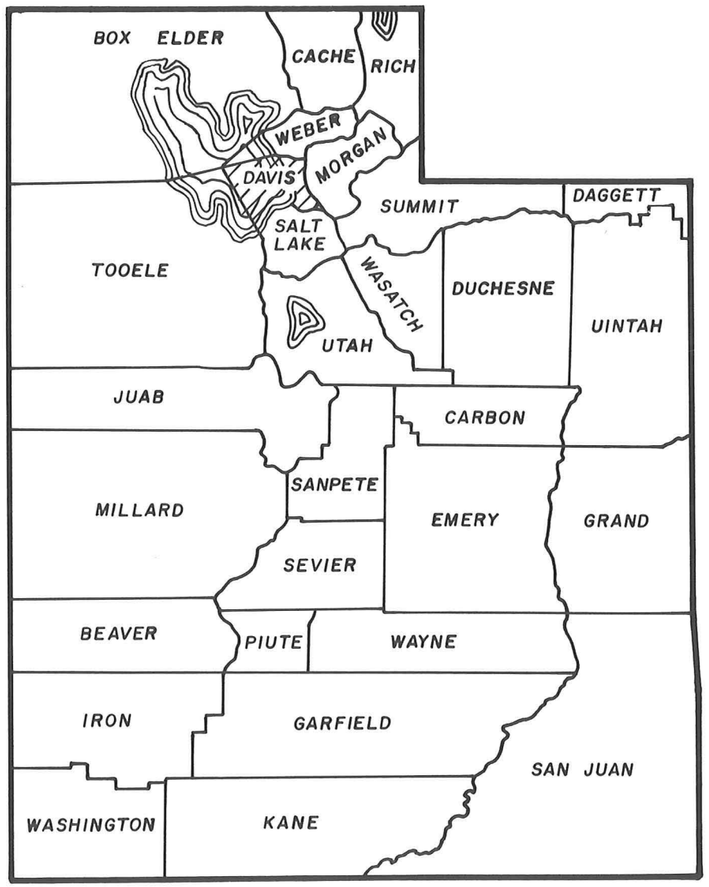
DAVIS COUNTY

- POTENTIAL SOURCES
- PIT LOCATIONS
- TEST DATA
- GEOLOGY

DISTRICT TWO
MATERIALS SECTION
UTAH STATE
DEPT. OF
HIGHWAYS

MATERIALS INVENTORY

DAVIS COUNTY



**Lithographed by the Reproduction Department,
Utah State Department of Highways**

CONTENTS

ILLUSTRATIONS

PURPOSE

The Materials Inventory enables the Utah Department of Highways to locate, investigate and catalog useful information related to material for highway construction. It is a system by which an accessible, permanent and up-to-date record is kept on materials sites that are owned or may be purchased or optioned by the Department of Highways in the future. Also included are commercial sites and localities that are not presently available for use.

The inventory is valuable in eliminating duplication of work in locating materials sites. General information on known materials sites and prospective sites is available on a county basis in booklet form. Information in addition to that contained in the booklets is available from a central file in the Materials Inventory Section of the Materials and Research Division and in the respective District Materials Sections.

Although an enormous quantity of road-building material is now available in Utah, it must be realized that one day the material may be depleted or completely unobtainable due to the encroachments of man. As highway standards are improved, the quality of materials that are used in construction must also be improved. Good quality material is not readily available in all places, so it is necessary to locate and secure choice sites before they are depleted or become unobtainable. The advent of the Interstate Highway Program has further emphasized the necessity for large quantities of high quality material for highway construction.

PROCEDURES

The Materials Inventory is accomplished by a step by step sequence as follows:

1. Compilation of all available site data from existing files and records.
2. Acquisition of available geologic and soil map coverage of the county.
3. Plotting the above information on $\frac{1}{2}$ inch = 1 mile county maps.
4. Examination of each site to determine the quantity and quality of the material, take samples for lab tests, and determine the feasibility of material removal.
5. Preparation of the inventory booklet.
6. Establishment of a permanent record in the Materials and Test Division and District files to include detailed information concerning each site.

Three forms are used to aid in compiling the data. The forms become part of the permanent records. They include:

Form MI-1, "Preliminary Materials Survey" (see figure 1-a), is especially designed for the collection of the initial materials inventory data while in the field. The information contained on this form includes approximate grading, type of material, type of deposit, rock type, surface conditions of the site (indicating obstructions to excavation, etc.), impurities in the material (sand lenses, clay lenses, cementation, etc.), accessibility of site, quantity and quality of material, site number, ownership, and location of site. The form is a specially designed "Needle Sort" card. By notching the card according to the code (Figure 1-b) and using the sorting needle, it is possible to rapidly sort, arrange, or select any information recorded on any card or group of cards in the filing system. The "Needle Sort" instruction manual gives detailed instruction as to the operation and use of this system and the reader should refer to this manual for more detailed information.

Form MI-2, "Materials Source Data," contains information from the lab tests. It also includes a sketch map of the deposit showing the location, outline of the material site, drill holes, sample localities, and information such as direction and distance from a survey station or highway. Drill holes or other sample information is logged in the columns below the sketch map.

Form MI-3, "Pit Evaluation Report," (see figure 2) is designed to aid in the maintenance of current records. It is to be completed by the project engineer after pit operations have ceased. Included on the form are items such as quantity removed; the type, size and quality of material; and physical factors involved in pit operation.

REPORT PREPARATION

The first county materials inventory booklet made by the Utah Department of Highways was compiled in 1961 for Davis County. All subsequent booklets were made with a revised booklet size, and map scale. This booklet which conforms with the other materials inventories, is a revision of the original Davis County materials inventory.

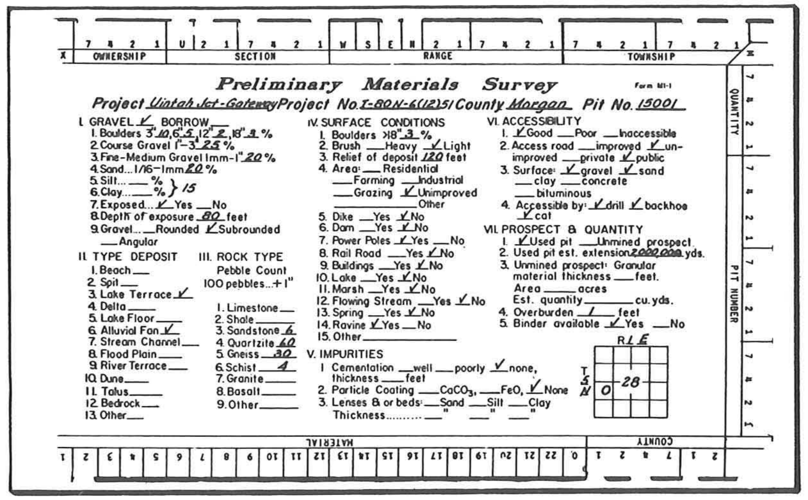
The procedures for the functioning of the inventory and the format of the booklets were established by Roy D. Tea, District Two Materials Engineer; Norbert W. Larsen, former Geologist for the Central Laboratory; and J. Derle Thorpe, former Research Engineer for the Central Laboratory.

The field work was done in the summer of 1970 by Tom McCleary, Materials Engineer, and Jack L. Bytheway, Geologist. The drafting was done by Roger Williams. The booklet was prepared under the supervision of Roy D. Tea, District Materials Engineer.

With the help of aerial photos, new pits were located, mapped, sampled, tested and catalogued. The pits and potential sources were renumbered so that the numbers begin in the northern part of the county and increase southward.

Laboratory tests on the representative gravel and borrow samples were made by the District Two Materials Laboratory. The geology shown on the "Geologic Map Showing Pit Locations and Potential Sources of Gravel and Borrow" was obtained from two maps. Bedrock data was obtained from the "Geologic Map of Northwestern Utah," 1963, compiled by W. L. Stokes for the College of Mine and Mineral Industries, University of Utah. Soil data was obtained from "Soil Survey, Davis-Weber Area, Utah," U.S. Department of Agriculture, Soil Conservation Service, 1968. Revisions based on field observations were made in critical areas.

MATERIALS INVENTORY FORMS



Preliminary Materials Survey — Form MI-1

Project *Uintah Jct-Gateway* Project No. *I-80N-6(12)51* County *Morgan* Pit No. *15001*

I. GRAVEL ✓ BORROW ___
1. Boulders 3" *10*, 6" *5*, 12" *2*, 18" *3* %
2. Course Gravel 1"-3" *25* %
3. Fine-Medium Gravel 1mm-1" *20* %
4. Sand... 1/16-1mm *20* %
5. Silt... ___ % } *15*
6. Clay... ___ %
7. Exposed... ✓ Yes ___ No
8. Depth of exposure *80* feet
9. Gravel... ___ Rounded ✓ Subrounded ___ Angular

II. TYPE DEPOSIT
1. Beach ___
2. Spit ___
3. Lake Terrace ✓
4. Delta ___
5. Lake Floor ___
6. Alluvial Fan ✓
7. Stream Channel ___
8. Flood Plain ___
9. River Terrace ___
10. Dune ___
11. Talus ___
12. Bedrock ___
13. Other ___

III. ROCK TYPE — Pebble Count, 100 pebbles...+1"
1. Limestone ___
2. Shale ___
3. Sandstone *6*
4. Quartzite *60*
5. Gneiss *30*
6. Schist *4*
7. Granite ___
8. Basalt ___
9. Other ___

IV. SURFACE CONDITIONS
1. Boulders >18" *3* %
2. Brush ___ Heavy ✓ Light
3. Relief of deposit *120* feet
4. Area: ___ Residential ___ Farming ___ Industrial ___ Grazing ✓ Unimproved ___ Other
5. Dike ___ Yes ✓ No
6. Dam ___ Yes ✓ No
7. Power Poles ✓ Yes ___ No
8. Rail Road ___ Yes ✓ No
9. Buildings ___ Yes ✓ No
10. Lake ___ Yes ✓ No
11. Marsh ___ Yes ✓ No
12. Flowing Stream ___ Yes ✓ No
13. Spring ___ Yes ✓ No
14. Ravine ✓ Yes ___ No
15. Other ___

V. IMPURITIES
1. Cementation ___ well ___ poorly ✓ none, thickness ___ feet
2. Particle Coating ___ $CaCO_3$, ___ FeO, ✓ None
3. Lenses & or beds: ___ Sand ___ Silt ___ Clay; Thickness ... ___" ___" ___"

VI. ACCESSIBILITY
1. ✓ Good ___ Poor ___ Inaccessible
2. Access road ___ improved ✓ un-improved ___ private ✓ public
3. Surface: ✓ gravel ✓ sand ___ clay ___ concrete ___ bituminous
4. Accessible by: ✓ drill ✓ backhoe ✓ cat

VII. PROSPECT & QUANTITY
1. ✓ Used pit ___ Unmined prospect
2. Used pit est. extension *2,000,000* yds.
3. Unmined prospect: Granular material thickness ___ feet. Area ___ acres. Est. quantity ___ cu. yds.
4. Overburden *1* feet
5. Binder available ✓ Yes ___ No

R *1* E; T *5* N; Sec. *28*

Figure 1-a. Reproduction of the Preliminary Materials Survey Form MI-1 on the Needle-Sort card. The actual card is 8 x 5 inches.

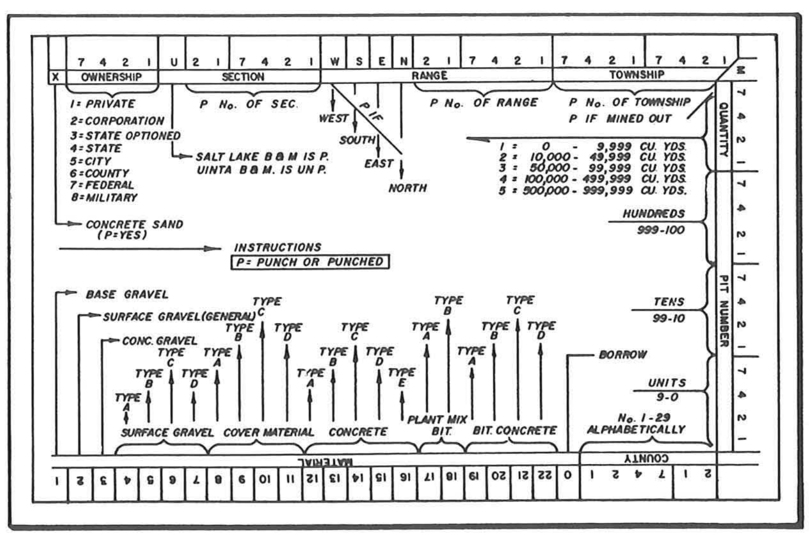


Figure 1-b. Reproduction of code card used in punching Form MI-1. The actual card is 8 x 5 inches.

PIT EVALUATION REPORT

Form MI-3
(Rev. 6-64)

To: Engineer of Materials and Research

Project Name & No.____________________ Date________

Pit or Prospect No.________ Station Location____________

Legal Description____________________

TYPE OF MATERIAL	MATERIALS REMOVED (CU. YDS.)
Base Gravel..................................	
Surface Gravel (Type)......................	(Cu. Yds. or Tons)
Concrete Sand................................	
Concrete Gravel..............................	
Bituminous Surface Course Aggregate.......	
Granular Backfill Underdrain..............	
Borrow..	
Other Material (Rip Rap, Chips)...........	
Total Gravel Removed	

Comments:

Quality of Material____________________

Uniformity of Material____________________

Lenses..........gravel______sand______silt______Clay Thickness______

Amount of Oversize (+12")______% Average thickness of Overburden______

Estimated Quantity Remaining____________cu. yds.

Further Investigation necessary to determine remaining quantity: yes______no______

Features of Pit:____________________

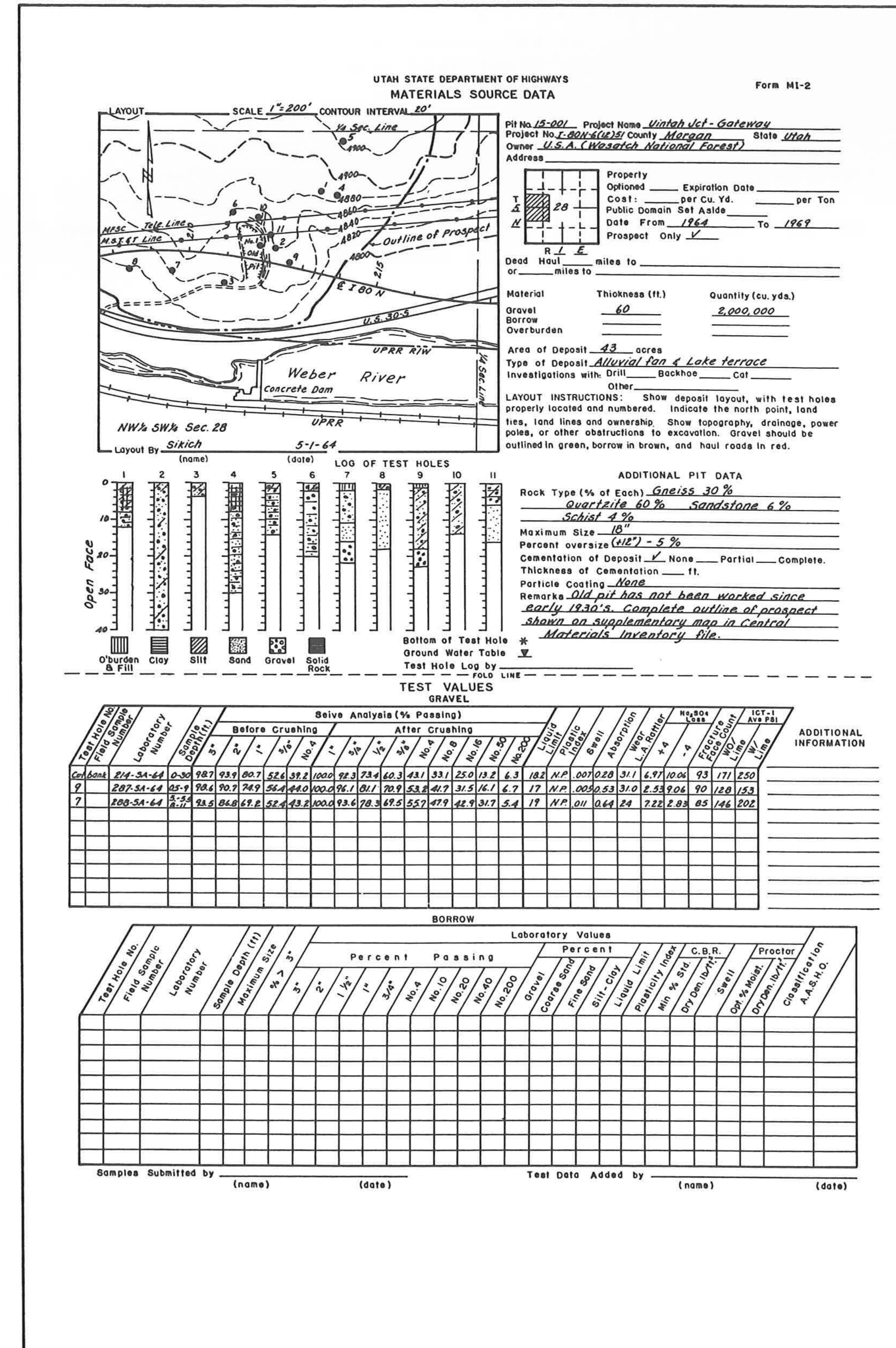
Difficulties of Operation:____________________

Recommendations for Future use of Pit:____________________

cc: District Materials Engr.

By:____________________
Project Engineer

Figure 2. Reproduction of the Pit Evaluation Report Form MI-3. The actual form is 8 ½ x 11 inches.



UTAH STATE DEPARTMENT OF HIGHWAYS
MATERIALS SOURCE DATA

Form MI-2

LAYOUT ___ SCALE *1" = 200'* CONTOUR INTERVAL *20'*

Layout By *Sikich* (name) *5-1-64* (date)

Pit No. *15-001* Project Name *Uintah Jct - Gateway*
Project No. *I-80N-6(12)51* County *Morgan* State *Utah*
Owner *U.S.A. (Wasatch National Forest)*
Address ___

Property: Optioned ___ Expiration Date ___; Cost: ___ per Cu. Yd. ___ per Ton; Public Domain Set Aside ___; Date From *1964* To *1969*; Prospect Only ✓

T *5* N, R *1* E, Sec. 28

Dead Haul ___ miles to ___
or ___ miles to ___

Material	Thickness (ft.)	Quantity (cu. yds.)
Gravel	*60*	*2,000,000*
Borrow		
Overburden		

Area of Deposit *43* acres
Type of Deposit *Alluvial fan & Lake terrace*
Investigations with: Drill ___ Backhoe ___ Cat ___ Other ___

LAYOUT INSTRUCTIONS: Show deposit layout, with test holes properly located and numbered. Indicate the north point, land ties, land lines and ownership. Show topography, drainage, power poles, or other obstructions to excavation. Gravel should be outlined in green, borrow in brown, and haul roads in red.

LOG OF TEST HOLES

Bottom of Test Hole *
Ground Water Table ▼
Test Hole Log by ___

ADDITIONAL PIT DATA

Rock Type (% of Each) *Gneiss 30 %, Quartzite 60 %, Sandstone 6 %, Schist 4 %*
Maximum Size *18"*
Percent oversize *(+12") - 5 %*
Cementation of Deposit ✓ None ___ Partial ___ Complete.
Thickness of Cementation ___ ft.
Particle Coating *None*
Remarks *Old pit has not been worked since early 1930's. Complete outline of prospect shown on supplementary map in Central Materials Inventory file.*

FOLD LINE

TEST VALUES

GRAVEL

Test Hole No.	Field Sample Number	Laboratory Number	Sample Depth (ft.)	Before Crushing 3"	Before Crushing 2"	Before Crushing 1"	Before Crushing 5/8"	Before Crushing No. 4	After Crushing 1"	After Crushing 3/4"	After Crushing 1/2"	After Crushing 3/8"	After Crushing No. 4	After Crushing No. 8	After Crushing No. 16	After Crushing No. 50	After Crushing No. 200	Liquid Limit	Plastic Index	Swell	Absorption	Wear L.A. Rattler	Na_2SO_4 Loss +4	Na_2SO_4 Loss -4	Fracture Face Count	ICT-1 Ave PSI WO/ Lime	ICT-1 Ave PSI W/ Lime	ADDITIONAL INFORMATION
Cut	bank	214-SA-64	0-30	98.7	93.9	80.7	52.6	39.2	100.0	92.3	73.4	60.3	43.1	33.1	25.0	13.2	6.3	18.2	N.P.	.007	0.28	31.1	6.97	10.06	93	171	250	
9		287-SA-64	0.5-9	98.6	90.7	74.9	56.4	44.0	100.0	96.1	81.1	70.9	53.2	41.7	31.5	16.1	6.7	17	N.P.	.005	0.53	31.0	2.53	9.06	90	128	153	
7		288-SA-64	5-5.5 8-11	93.5	84.8	69.2	52.4	43.2	100.0	93.6	78.3	69.5	55.7	47.9	42.9	31.7	5.4	19	N.P.	.011	0.64	24	7.22	2.83	85	146	202	

BORROW

Test Hole No.	Field Sample Number	Laboratory Number	Sample Depth (ft)	Maximum Size	% > 3"	Percent Passing 3"	2"	1 1/2"	1"	3/4"	No. 4	No. 10	No. 20	No. 40	No. 200	Percent Gravel	Coarse Sand	Fine Sand	Silt-Clay	Liquid Limit	Plasticity Index	C.B.R. Min % Std	C.B.R. Dry Den. lb/ft³	Swell	Proctor Opt % Moist	Proctor Dry Den. lb/ft³	Classification A.A.S.H.O.

(Laboratory Values)

Samples Submitted by ___ (name) ___ (date)   Test Data Added by ___ (name) ___ (date)

Figure 3. Reproduction of the Materials Source Data Form MI-2. The actual form is 11 x 17 inches.

DAVIS COUNTY GEOGRAPHY & PHYSIOGRAPHY

Davis County encompasses an area of 297 square miles in the north central part of Utah. It occupies portions of the Basin and Range and Rocky Mountain physiographic provinces. It has characteristic north-south trending mountains and all drainage is into the Great Salt Lake.

Rainfall ranges from 5 inches on Antelope Island to over 30 inches in the higher mountain areas. The highest elevations are Francis Peak at 9,547 feet and Bountiful Peak at 9,482 feet in the Wasatch Mountains.

The main highways are Interstate Highway 15 and U.S. Highway 89 both traversing the county in a north-south direction.

DAVIS COUNTY GEOLOGY

TERTIARY TO RECENT GEOLOGIC HISTORY

The most important sources of road-building materials in Davis County are the sand and gravel deposits which were formed by Lake Bonneville. The following is a brief geologic history of Lake Bonneville and the conditions during and after the existence of the lake.

The present topographic features of western Utah began to form about 20 million years ago as a result of movement on north-south trending faults. Uplift along the faults gradually defined the present mountains. The mountains formed interior drainage basins which were occupied by pre-Lake Bonneville lakes at various times.

About 25,000 years ago, the climate changed to higher precipitation and lower temperature. The lowering of the temperature reduced evaporation. Glaciers formed in the high mountain areas. Lake Bonneville began to rise although there were pauses and regressions. However, the general trend of the water level was upward. Simultaneously the lake increased in size. When the lake reached its maximum depth of about 1,000 feet, it was 285 miles long and 140 miles wide and had a surface area of nearly 20,000 square miles. At this level the lake extended into Weber Canyon as far as the Morgan area.

The water remained stationary at the highest level for a long period of time. This level of the lake is named the Bonneville level and the associated terraces are called Bonneville terraces. The lake level then rose and began to overflow at the lowest point on the rim of the enclosing basin. This point was at the northern end of Cache Valley at Red Rock Pass. As the outflowing stream cut down through the pass, the lake level fell rapidly. The maximum discharge rate was approximately 15 million cubic feet per second. The downcutting came to a halt about 300 feet below the Bonneville level as the stream encountered a resistant layer of limestone. This level of the lake is called the Provo level. Lake Bonneville remained at the Provo level longer than at any other and there it constructed the largest terraces.

After the lake had maintained an outflow at the Provo level for a long period of time, the climate again changed and the lake level fell to an elevation about 400 feet below the Provo level. Here it remained long enough to construct its third largest terrace - the Stansbury. After the Stansbury terraces had formed, the lake continued its downward trend because evaporation exceeded intake. Salinity increased as the lake level decreased. This trend has continued to the present time and the Great Salt Lake is a remnant of Lake Bonneville.

PRINCIPLE TYPES OF SAND AND GRAVEL DEPOSITS

Lake Bonneville Terrace Deposits: Waves driven by the prevailing winds exert force on the lake shores. The abrasive action of sand and gravel aid in the cutting of terraces into the shoreline. The debris loosened by the wave action is deposited along the shoreline. These deposits are known as wave-built terraces. Bedrock from the shoreline and material brought into the lake by streams are deposited in the terraces. The grinding and pounding action of the waves reduces large rock fragments to gravel, sand and silt size. The undertow which flows outward beneath the incoming waves carries vast quantities of silt and clay sized material outward into deep water where it is deposited on the lake floor out of the reach of further wave action. These processes usually create deposits that are "clean" and well-sorted. The lake terrace deposits in Davis County are mostly sand because the metamorphic rock in this part of the Wasatch Mountains readily breaks down into sand size particles. Lake Bonneville Terrace deposits are shown on the geologic map as Qlts.

Weber River Delta Deposits: Deltas are formed when a river enters a lake or ocean. The river velocity is decreased and the sediment is deposited. The coarser sediments are deposited near the shore and finer material is deposited further out.

The Weber River formed the largest of all of the deltas in Lake Bonneville. The top of the delta is at the Provo level at the mouth of Weber Canyon and slopes downward to the south, west and north for 6 to 8 miles in each direction. A well log at Hill Air Force Base indicates that the sand and gravel deposits are about 325 feet thick. The area shown on the Geologic Map as Weber River Delta Deposits (Qwg, Qws and Qwl) has the general form of a delta. However the delta has been modified by Lake Bonneville wave and current action and by stream erosion.

During Lake Bonneville time, the Weber River was much larger than at present because of increased precipitation and runoff from melting glaciers. The huge amount of material transported by the river and deposited in the delta was derived from river and glacial erosion.

Since the time when the lake receded below the Provo level, the Weber River has cut downward approximately 300 feet into the delta and formed river terraces in the delta deposits.

LOCATION OF ADDITIONAL MATERIALS SITES

The inventory booklet contains a section designated as "Explanation for Geologic Map," which describes the various formations. Following this is the map titled "Geologic Map Showing Pit Locations and Potential Sources of Gravel and Borrow" which locates known sites by number and symbol. Areas which contain the best deposits of gravel and borrow are shown in green. The yellow areas are chiefly sand, silt, and clay which are generally unsuitable for road-building material. Bedrock, shown in blue, is not an important source of material at present. However, in the future it may become necessary to use bedrock in areas where unconsolidated rock is not obtainable. Through proper use of the geologic maps, the description of geologic units, and test information, the locations of additional sites may be inferred.

Test data for samples obtained from each site is summarized on the "Test Data Sheet," with the corresponding pit number for identification. Some pits contain both gravel and borrow material, making it difficult in many cases to label the material collected as representative of the pit. This also leaves some doubt as to whether a pit should be called a gravel pit or a borrow pit. As a general rule, a site designated as a gravel pit can be used for borrow if conditions warrant.

REFERENCES

Eardley, A. J., 1964, Lake Bonneville: in Geology of Salt Lake County, Utah Geol. and Mineralog. Survey Bull. 69, p. 69-76.

Morrison, R. B., 1966, Predecessors of Great Salt Lake: in The Great Salt Lake, Utah Geological Society Guidebook to the Geology of Utah No. 20, p. 77-104.

Stokes, W. L., 1963, Geological Map of Northwestern Utah: College of Mines and Mineral Industries, University of Utah.

United States Department of Agriculture, 1968, Soil Survey Davis-Weber Area, Utah.

STATEMENT OF LIABILITY

The Utah State Department of Highways assumes no liability concerning the quantity or quality of materials. The information contained in this booklet is based on sound geological and/or geophysical interpretations and laboratory tests performed on the material. However, due to the erratic nature of some deposits, the information may not be completely representative of the materials sites.

OLD AND NEW NUMBERS FOR MATERIALS SITES

Old No.	New No.	Old No.	New No.	Old No.	New No.
06001	06024	06030	06062	06059	06018
02	01	31	64	60	Deleted
03	04	32	65	61	19
04	03	33	10	62	42
05	11	34	15	63	44
06	09	35	Deleted	64	34
07	13	36	28	64A	63
08	12	37	48	65	35
09	02	38	61	65A	45
10	Deleted	39	Deleted	66	27
11	52	40	Deleted	67	Deleted
12	20	41	Deleted	68	Deleted
13	21	42	30	69	Deleted
14	22	43	57	70	Deleted
15	23	44	Deleted	71	68
16	26	45	Deleted	72	07
17	29	46	Deleted	73	Deleted
18	31	47	33	74	69
19	37	48	Deleted	75	70
20	38	49	55	76	67
21	39	50	16	77	06
22	41	51	08	78	32
23	43	52	14	79	66
24	46	53	17	80	59
25	47	54	25	81	58
26	49	55	40	82	56
27	51	56	Deleted	83	53
28	54	57	36	84	Deleted
29	Deleted	58	60	85	05
				86	50

QUATERNARY

Qlts

Lake Bonneville Terrace Deposits

Built by the wave and current action of Lake Bonneville. Mainly sand and gravel with boulders and minor amounts of silt and clay. The lake terrace deposits in Davis County generally contain a high percentage of sand. Some pits contain sand at the surface and change to sand and gravel at depth. These deposits are located in a narrow strip along the Wasatch Front and on the sides of Antelope Island. The gravel consists mainly of Precambrian Age rocks from the Farmington Canyon Complex. An excellent source of borrow material. The gravel, where present, is of good quality. In some locations, the area mapped as Qlts contains alluvial material.

Qwg Qws Qwl

Weber River Delta Deposits

Material transported by the Weber River and deposited as a delta in Lake Bonneville, The particle size decreases valleyward from the canyon mouth.

Qwg - Well sorted sand and gravel delta deposits located in the terraces adjacent to the Weber River and under the layer of flood plain deposits in the Weber River Flood Plain. An excellent gravel source.

Qws - Excessively drained, fine sand and loamy fine sand. Located in the vicinity of Hill Air Force Base. A potential borrow source.

Qwl - Well drained, mainly loam and fine sandy loam. Located in the lower parts of the Weber Delta. Not a good borrow source because of fine particle size and plasticity.

Qwf

Weber River Flood Plain Deposits

Gravel and sand in the flood plain of the Weber River. Contains boulders near the mouth of the canyon. The deposit is approximately 10 feet thick and overlies at least 50 feet of Weber River Delta sand and gravel. A good source of gravel and borrow.

Qlbs Qlbc

Lake Bed Sediments

Qlbs - Poorly drained, saline - alkali fine sandy loam and silty loam. A poor source of borrow.

Qlbc - Very poorly drained. Silty clay loam and silty loam. A poor source of borrow. Very saline in areas near the Great Salt Lake.

Qm

Marshland

Poorly drained area with marsh vegetation. The water may be fresh, brackish or salty. Located near the shoreline of the Great Salt Lake.

TERTIARY

Tk

Knight Conglomerate

Mainly gray to reddish massive conglomerate with some sandstone and shale. The conglomerate consists of cobbles, boulders and gravel cemented with calcareous cement. The predominant rock is quartzite. There is also limestone, sandstone and chert. The Knight Conglomerate outcrops in the southern part of Davis County on the Salt Lake Salient. Accessibility to the Knight Conglomerate is difficult. However it should be considered as a potential aggregate source when the more accessible lake terrace deposits in the area are mined out.

PALEOZOIC

Pal

Paleozoic Rocks Undivided

In Davis County, Paleozoic rocks outcrop only in the area above Mueller Park. The formations are the Tintic Quartzite, Ophir Shale, and various limestone of Cambrian, Devonian and Mississippian age. The limestone and quartzite are suitable for aggregate but are not considered a potential source because of their inaccessibility.

PRECAMBRIAN

PCm

Mutual Formation

Consists of dolomite, slate and quartzite. It forms the northern part of Antelope Island. Has been used for rip-rap. Not considered a potential aggregate source because of lake terrace deposits in the area.

PCmf

Mineral Fork Tillite

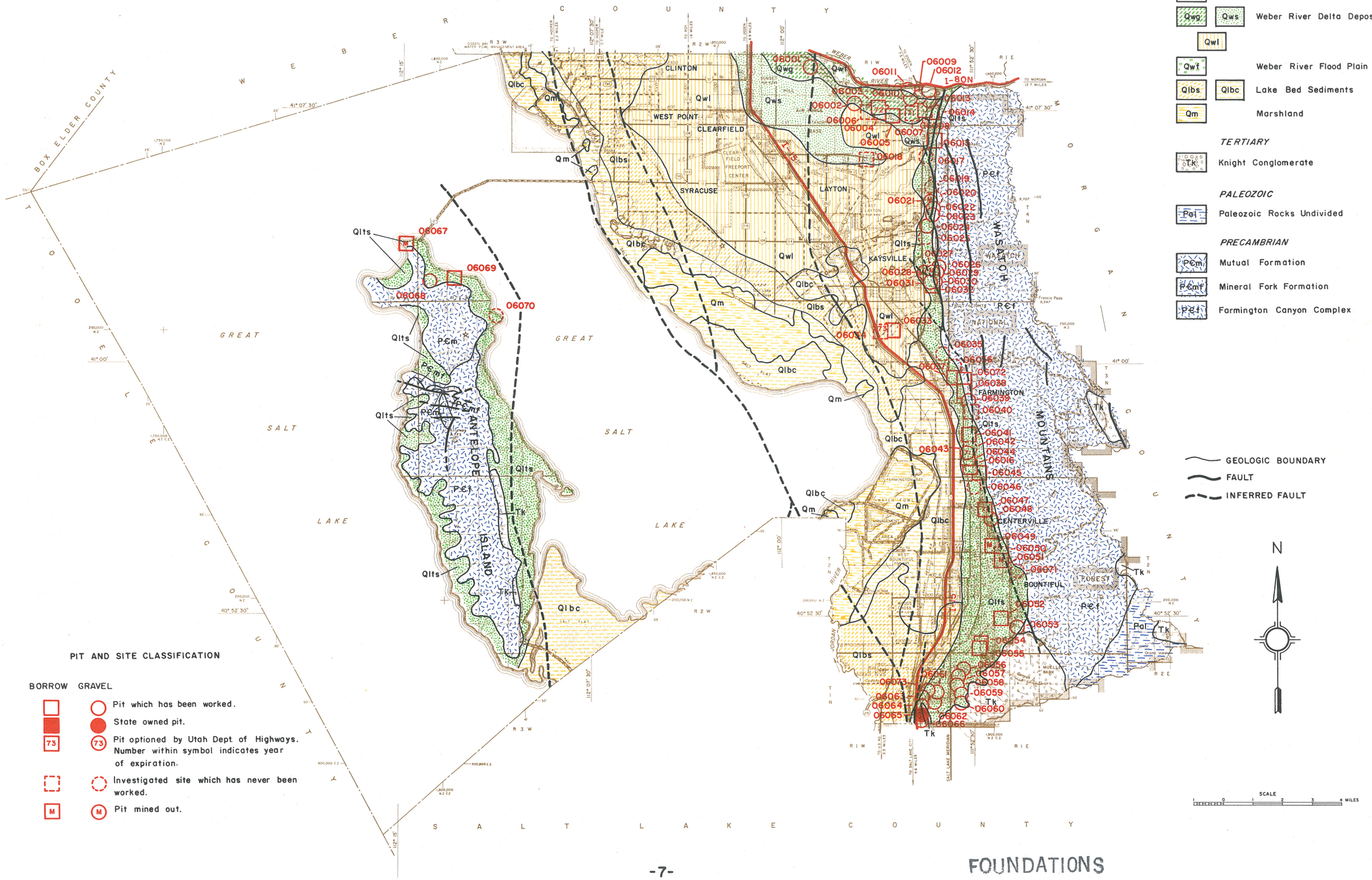
Glacial deposits consisting of boulders, cobbles and pebbles of quartzite, limestone and granitic rock in a black sandy matrix. Several small outcrops are located on Antelope Island. Not considered a potential aggregate source because of inaccessibility.

PCf

Farmington Canyon Complex

Metamorphic rocks consisting of schist, gneiss, amphibolite, pegmatite and metaquartzite. Forms most of the Wasatch Range in Davis County and the southern part of Antelope Island. Most of the gravel deposits in Davis County were derived from the Farmington Canyon Complex. Weathering readily decomposes some of the schist and gneiss. Talus slopes are a potential aggregate source in the high mountain areas.

GEOLOGIC MAP SHOWING PIT LOCATIONS AND POTENTIAL SOURCES OF GRAVEL AND BORROW
DAVIS COUNTY, UTAH
1971



QUATERNARY

- Qlts — Lake Bonneville Terrace Deposits
- Qwg, Qws — Weber River Delta Deposits
- Qwl — Weber River Flood Plain Deposits
- Qlbs, Qlbc — Lake Bed Sediments
- Qm — Marshland

TERTIARY

- Tk — Knight Conglomerate

PALEOZOIC

- Pal — Paleozoic Rocks Undivided

PRECAMBRIAN

- Pcm — Mutual Formation
- Pcmf — Mineral Fork Formation
- Pcf — Farmington Canyon Complex

GEOLOGIC BOUNDARY
FAULT
INFERRED FAULT

PIT AND SITE CLASSIFICATION

BORROW	GRAVEL	
□	○	Pit which has been worked.
■	●	State owned pit.
73	(73)	Pit optioned by Utah Dept. of Highways. Number within symbol indicates year of expiration.
⬚	◌	Investigated site which has never been worked.
M	(M)	Pit mined out.

FOUNDATIONS

PITS AND POTENTIAL SITES - TEST DATA SHEET

LOCATION						OWNERSHIP		MATERIAL					TEST DATA - REPRESENTATIVE SAMPLE																				
																SIEVE ANALYSIS														IMMERSION COMPRESSION AVG. P.S.I.			SODIUM SULPHATE LOSS	
																BEFORE CRUSHING		PERCENT PASSING AFTER CRUSHING TO 3/4" OR 1" MAX. **												LIME				
PIT OR SITE NUMBER	TOWNSHIP	RANGE	40 ACRE TRACT	QUARTER SECTION	SECTION	P = PRIVATE C = COMMERCIAL CO = COUNTY F = FEDERAL S = STATE	OWNER	USE OF MATERIAL	TYPE OF DEPOSIT	PRESENT ESTIMATED QUANTITY (CU. YDS.)	THICKNESS OF MATERIAL	DEPTH OF OVERBURDEN	DATE SAMPLED *	TYPE OF SAMPLE	DEPTH OF SAMPLE	> 3"	> 1"	3/4" OR 1"	1/2"	NO. 4	NO. 10 *	NO. 40 *	NO. 200	LIQUID LIMIT	PLASTICITY INDEX	SWELL	A.A.S.H.O. CLASSIFICATION	WO/	W/	ABRASION 500 REV.	+4	-4
06001	5N	1W	NW	NW	29	C	J.S. Dayton	BG & SG	Delta	50,000	75	2	1961	Cut bank	0'-65'	8	43	100	66	45	42	35	15	19	NP	.020				22		
06002	5N	1W	SW	NE	33	F	Hill A.F.B.	BG,SG,CA	Delta	150,000	20	10	1961	Cut bank	10'-17'	0	19	100	64	40	34	25	7	19	NP	.006				20	.28	1.20
06003	5N	1W	SE	NW	34	P	C. Feeny	Borrow	Delta	1,000,000	100	5	1969	Auger	0'-20'	0	0	100		100	100	94	19	NP	-	0	A-2-4					
06004	5N	1W	NW	SE	34	P	C. Feeny	Borrow	Delta	50,000	50	15	1969	Auger	14'-24'	0	0	100		100	99	97	70	27	8	.128	A-4(7)					
06005	5N	1W	NE	SE	34	P	C.T. Waters	Borrow	Delta	50,000	20	3	1970	Cut bank	10'-15'	0	0	100		100	100	94	43	19	NP	0	A-4(2)					
06006	5N	1W	NE	SW	34	P	F. Poll	Borrow	Delta	1,000,000	50	3	1961	Cut bank	0'-5'	0	0	100		100	100	93	13	20	NP	0.08	A-3					
06007	5N	1W	NW	SE	35	P	R. Poll and N. Fowles	Borrow BG & SG	Delta	1,000,000	50	3	1970	Cut bank	5'-10'	5	18	100	77	47	39	11	2	VNP	-	.004				23	1.0	3.0
06008	5N	1W	NW	SW	36	P	V. Fernelius	Borrow	Delta	20,000	15	3	1970	Cut bank	10'-12'	2	14	86		61	56	47	4	VNP		0	A-1-b					
06009	5N	1W	NE	NE	35	C	J.B. Parsons	BG,SG,CA	Delta	2,000,000	80	5	1961	Cut bank	30'-35'	0	35	100	65	43	37	22	3	22	NP	.009				22	2.7	2.0
06010	5N	1W	NW	NE	35	P	C. Waterfall	BG,SG,CA	Delta	1,000,000	80	0	1961	Cut bank	0'-7'	0	33	100	62	39	28	14	3	20	NP	.010				22	1.5	2.9
06011	5N	1W	SW	SE	26	P	Holley Co.	BG,SG	Delta	Millions	50	4	1961	Cut bank	7'-8'	12	24	100	67	35	25	15	3	19	NP	.007				21		
06012	5N	1W	SE	SW	25	C	Utah Sand and Gravel	BG,SG	Delta	2,000,000	80	3	1961																			
06013	5N	1W	NW	NW	36	C	Ideal Rock Products	BG,SG,CA	Delta	1,000,000	80	7	1961	Cut bank	20'	0	52	100	57	32	22	10	2	18	NP	.014				20	1.3	1.7
06014	5N	1W	NW	SW	36	P	E. Schmalz	Borrow	Delta	100,000	50	3	1970	Cut bank	0'-10'	5	22	100	72	43	26	13	6	VNP	-	0				25	1.8	3.4
06015	4N	1W	NE	SW	1	P	O. Hill	Borrow	Lake Terrace	1,000,000	30	3	1961	Cut bank	5'-20'	0	9	91		69	55	39	8	20	NP	.10	A-1-b					
06016	3N	1E	SW SE	SE	31	P	Kjar and M. George	Borrow BG & SG	Lake Terrace	100,000	50	2	1970	Cut bank	0'-30'	5	5	95	93	79	69	39	15	VNP	-	0	A-1-b					
06017	4N	1W	NW	NW	12	P	W.H. Morton	BG & SG	Lake Terrace	100,000	30	3																				
06018	4N	1W	NW	NW	10	P	J. Adams	Borrow	Dune	240,000	10	0	1970	Cut bank	0'-5'	0	0	100	100	100	100	95	2	VNP	-	0	A-3					
06019	4N	1W	NE	NW	13	F	Public Domain	BG & SG	Lake Terrace	100,000	75	5	1970	Cut bank	20'-25'	11	15	100	88	60	48	19	2	VNP	-	0				28	3.9	6.2
06020	4N	1W	NW	SE	13	City	Layton City	BG & SG	Lake Terrace	150,000	35	3	1961	Cut bank		5	17	100	80	56	45	30	3	22	NP	.012				26	9.3	3.8
06021	4N	1W	NE	SW	13	P	L. Walton	BG & SG	Lake Terrace				M	I	N	E	D			0	U	T									
06022	4N	1W	SE	SW	13	P	L. Walton	BG & SG	Lake Terrace	100,000	100	5	1961	Cut Bank	30' 40'	0	8	100	84	47	28	18	2	23	NP	.022				26		
06023	4N	1W	NE	NW	24	P	J. Love	BG & SG	Lake Terrace	75,000	20	4	1961	Cut bank	0'-8'	0	11	100	77	51	33	14	2	23	NP	.015				29		
06024	4N	1W	NE	SW	24	P	F. Love K. Achter	BG & SG	Lake Terrace	100,000	60	3	1966	Auger	3'-12'	0	8	100	-	72	55	12	2	15	NP	0		91	134	33	1.6	
06025	4N	1W	SW	SW	24	P	L. Love	BG & SG	Lake Terrace	100,000	20	5	1970	Cut bank	6'-10'	5	14	100	95	76	62	29	15	VNP	-	.005				43	10.4	6.0

* SAMPLES TESTED FOR BASE AND SURFACING AGGREGATE AFTER MID-1963 USE NO.8 AND NO.50 SIEVES RESPECTIVELY.
** SAMPLES TESTED FOR BORROW NOT CRUSHED.

PITS AND POTENTIAL SITES - TEST DATA SHEET

LOCATION						OWNERSHIP		MATERIAL					TEST DATA - REPRESENTATIVE SAMPLE																			
PIT OR SITE NUMBER	TOWNSHIP	RANGE	40 ACRE TRACT	QUARTER SECTION	SECTION	P = PRIVATE C = COMMERCIAL CO = COUNTY F = FEDERAL S = STATE	OWNER	USE OF MATERIAL	TYPE OF DEPOSIT	PRESENT ESTIMATED QUANTITY (CU. YDS.)	THICKNESS OF MATERIAL	DEPTH OF OVERBURDEN	DATE SAMPLED *	TYPE OF SAMPLE	DEPTH OF SAMPLE	SIEVE ANALYSIS								LIQUID LIMIT	PLASTICITY INDEX	SWELL	A. A. S. H. O. CLASSIFICATION	IMMERSION COMPRESSION AVG. P.S.I.		ABRASION 500 REV.	SODIUM SULPHATE LOSS	
																BEFORE CRUSHING		PERCENT PASSING AFTER CRUSHING TO 3/4" OR 1" MAX. **										LIME				
																> 3"	> 1"	3/4" OR 1"	1/2"	NO. 4	NO. * 10	NO. * 40	NO. 200					WO/	W/		+4	-4
06026	4N	1W	SW	SE	25	CO	Davis County	BG & SG	Lake Terrace	100,000	70	2	1961	Cut bank	0'-50'	0	13	100	82	60	48	28	7	22	NP	.011				21		
06027	4N	1W	NE	NW	36	CO	Davis County Kaysille City	BG & SG	Lake Terrace				M	I	N	E	D			0	U	T										
06028	4N	1W	NW	NW	36	P	R. Ward	BG & SG	Lake Terrace				M	I	N	E	D			0	U	T										
06029	4N	1W	NE	NW	36	F	Public Domain	BG & SG	Lake Terrace	50,000	50	0	1961	Wind-row		9	9	100	79	57	50	36	10	18	NP	.022				26		
06030	4N	1W	SE	NW	36	P	B. Abrams	BG & SG	Lake Terrace	100,000	150	2	1952	Cut bank		20	12	100		54	38	18	6	17	NP	.012				24		
06031	4N	1W	SW	NW	36	P	J. Barker	BG & SG	Lake Terrace	25,000	70	3	1961	Cut bank	3'-10'	0	6	100	90	67	44	13	2	22	NP	.020				38	29.5	12.6
06032	4N	1W	SE	NW	36	P	P. Abrams	Borrow	Lake Terrace	100,000	20	0	1970	Cut bank	15'-20'	0	0	100	100	100	99	98	82	21	NP	.30	A-4(8)					
06033	3N	1W	NE	NE	10	P	Bank of Utah	Borrow	Lake Terrace	300,000	15	3	1970	Cut bank	5'-15'	0	0	100	100	100	100	98	51	VNP	-	.20	A-4(3)					
06034	3N	1W	NW	NE	10	P	L.D.S. Church	Borrow	Lake Terrace	700,000	20	3	1969	Auger	3'-20'	0	0	100	100	100	100	99	43	-	NP		A-4(1)					
06035	3N	1W	NE SE	SE	12	P	L. Welling	BG & SG Borrow	Lake Terrace	500,000	100	2	1969	Auger	3'-12'	0	13	100	-	68	51	12	6	19	NP	-	-	197	290	29	2.3	-
06036	3N	1E	NW	NW	18	P	L. C. Bennion	BG & SG	Lake Terrace	1,000,000	50	2	1970	Back hoe	1'-4'	15	14	86		59	49	22	7	VNP		0	A-1-a					
06037	3N	1E	SE	NW	18	City	Davis County Farmington City	Borrow	Alluvial Fan	200,000	20	0	1969	Auger	5'-10'	0	28	72	-	45	35	9	3	-	NP	0	A-1-a					
06038	3N	1E	NW	NE	19	P	E.C. Hedgepeth	Borrow	Lake Terrace	200,000	75	9	1961	Cut bank	63'-69	0	3	97		78	63	32	5	23	NP	.150	A-1-b					
06039	3N	1E	SW	NE	19	P	F.E. Newman	BG & SG	Lake Terrace	200,000	70	3	1961	Cut bank	25'-35'	0	36	100	74	48	34	20	3	23	NP	.024				26		
06040	3N	1E	SW	SE	19	P	Zions First National Bank	Borrow	Alluvial Fan	200,000	50	1	1970	Cut bank	0'-4'	18	18	82		63	54	33	14	22	NP	0	A-1-b					
06041	3N	1E	NW	SE	30	P	H. Hughes	Borrow	Lake Terrace	2,000,000	150	4	1966	Auger	0'-5'	0	2	98		93	86	35	9	15	NP		A-1-b					
06042	3N	1E	NW	NE	31	P	V. White	BG & SG	Lake Terrace	155,000	26	4	1966	Dozer	0'-3'	4	12	100	80	57	49	12	2	VNP		.013		122	177	34	9.9	10.6
06043	3N	1E	SW	NE	31	P	Rice Estate	BG & SG Borrow	Lake Terrace	3,000,000	60	5	1966	Dozer	4'-14'	0	1	99		89	67	31	14	22	NP	0	A-1-b					
06044	3N	1E	SW	NE	31	P	Cannon Realty	Borrow	Lake Terrace	500,000	50	2	1969	Back hoe	2'-15'	0	7	93		69	56	17	6	VNP		0	A-1-b					
06045	3N	1E	SE	SE	31	P	K.V. Connary	Borrow	Lake Terrace	600,000	100	4	1969	Cut Bank	0'-25'	0	4	96		84	72	29	3	VNP		.100	A-1-b					
06046	2N	1E	SW	NE	6	P	R. G. Ford	BG & SG	Alluvial Fan	50,000	0	2	1953			31	15	100		37	27	9	1	23	NP	.012				25	1.5	
06047	2N	1E	NW	NW	8	P	E. Rockwood	Borrow	Lake Terrace	2,000,000	60	2	1966	Auger	12'-30'	0	3	97		73	68	50	25	VNP			A-1-b					
06048	2N	1E	SE	NW	8	F	Public Domain	BG & SG Borrow	Lake Terrace	100,000	20	4	1970	Cut bank	10'-15'			100	79	55	47	16	4	VNP	-	0				34	2.4	4.1
06049	2N	1E	SE	NW	17	City	Town of Centerville	Borrow	Lake Terrace				M	I	N	E	D			0	U	T										
06050	2N	1E	NW	SE	17	F	Public Domain	Borrow	Lake Terrace	100,000	30	3	1970	Cut bank	0'-5'	0	1	99		96	90	59	9	VNP		0	A-3					

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PITS AND POTENTIAL SITES - TEST DATA SHEET

LOCATION						OWNERSHIP		MATERIAL					TEST DATA - REPRESENTATIVE SAMPLE																				
PIT OR SITE NUMBER	TOWNSHIP	RANGE	40 ACRE TRACT	QUARTER SECTION	SECTION	P = PRIVATE C = COMMERCIAL CO = COUNTY F = FEDERAL S = STATE	OWNER	USE OF MATERIAL	TYPE OF DEPOSIT	PRESENT ESTIMATED QUANTITY (CU. YDS.)	THICKNESS OF MATERIAL	DEPTH OF OVERBURDEN	DATE SAMPLED *	TYPE OF SAMPLE	DEPTH OF SAMPLE	SIEVE ANALYSIS PERCENT PASSING									LIQUID LIMIT	PLASTICITY INDEX	SWELL	A. A. S. H. O. CLASSIFICATION	IMMERSION COMPRESSION AVG. P.S.I.		ABRASION 500 REV.	SODIUM SULPHATE LOSS	
																BEFORE CRUSHING		AFTER CRUSHING TO 3/4" OR 1" MAX. **											LIME				
																> 3"	> 1"	1"	1/2"	NO. 4	NO. 10 *	NO. 40 *	NO. 200					WO/	W/		+4	-4
06051	2N	1E	SW	SE	17	City	Bountiful City	Borrow	Lake Terrace				M	I	N	E	D			0	U	T										
06052	2N	1E	SW	SE	29	CO	Davis County Board of Ed.	Borrow	Lake Terrace	1,000,000	25	0	1957	Cut bank	8'-12'	0	2	98		76	74	83	35	19	NP	.430	A-2-4					
06053	2N	1E	NE	NW	33	P	Maple Hills of Bountiful Inc.	BG & SG Borrow	Lake Terrace	100,000	40	2	1970	Cut bank	15'-18'			100	62	30	24	12	4	19	NP	0					6.7	3.1
06054	2N	1E	SE	SE	31	C	Foss-Lewis	Borrow	Lake Terrace	25,000	70	4	1961	Cut bank	12'-20'			100		98	94	59	16	27	NP		A-2-4					
06055	2N	1E	SE	SE	31	C	Foss-Lewis	Borrow	Lake Terrace	50,000	30	1	1970	Cut bank	27'-30'	0	1	99		94	90	62	3	VNP	-	.20	A-3					
06056	1N	1E	NE	SW	6	C	W.Wood Estate Ut.Sand & Gvl.	BG & SG Borrow	Lake Terrace	100,000	100	0	1970	Cut bank	30'-40'	0	0	100		85	73	56	9	VNP	-	0	A-3					
06057	1N	1E	NW	SW	6	P	W. Wood Estate Highway Dept.	BG & SG Borrow	Lake Terrace	1,600,000	40	0	1965	Auger	0'-18'	0	0	-	-	100	98	94	21	23	NP	0	A-2-4					
06058	1N	1E	NW	NW	7	C	W. Wood Estate Davis Co.Red.M.	BG & SG	Lake Terrace	500,000	30	8	1970	Cut bank	20'-30'	8	12	100	83	49	37	17	3	VNP	-	0				25	0.6	2.4
06059	1N	1E	SW	NW	7	C	W. Wood Estate Foss-Lewis	BG & SG	Lake Terrace	500,000	30	4	1970	Cut bank	15'-20'			100	69	41	33	11	3	VNP	-	-				22	0.7	2.2
06060	1N	1E	SW	SW	7	P	W. Wood Estate	BG & SG	Lake Terrace	500,000	30	2	1959	Cut bank	10'-15'	0	20	100		31	22	16	7	19	NP	.015				21		
06061	1N	1W	SE	NW	12	P	First Western Fidelity	BG & SG	Lake Terrace	50,000	30	4	1970	Cut bank	10'-15'	2	9	100	90	53	40	15	5	17	NP	0			298	21	1.1	2.5
06062	1N	1W	NE SE	SW	12	C	Gibbons and Reed Co.	BG & SG	Lake Terrace	1,000,000	100	4	1970	Cut bank	4'-8'	0	11	100	88	46	26	8	3	17	NP	0			346	23	0.8	3.7
06063	1N	1W	NE	SE	11	C	P. C. Kimball	BG & SG	Lake Terrace	300,000	100	1	1964	Auger	0'-16'	0	7	93		66	48	27	3	18	NP	0	A-1-a					
06064	1N	1W	SE	SE	11	C	W. W. Gardner	BG & SG	Lake Terrace	500,000	100	1	1971	Stock pile				100	91	69	53	24	10			.001			395	27	3.8	2.1
06065	1N	1W	NE	NE	14	S	Department of Highways	BG & SG	Lake Terrace	500,000		1	1968	Cut bank		5	29	100	61	39	32	14	2	VNP		.001		284	337	24	1.1	2.5
06066	1N	1W	SE	NE	14	C	McKinnon Gravel Products	BG & SG	Lake Terrace	1,000,000	75	0	1970	Cut bank	40'-50'	3	24	100	77	46	37	14	6	VNP	-					27	3.9	3.7
06067	4N	4W	NW	NE	25	S	State Park	Riprap	Bedrock				M	I	N	E	D			0	U	T										
06068	4N	3W	NE	SW	31	S	State Park	BG & SG	Lake Terrace	1,000,000	30	2	1970	Cut bank	8'-10'	4	23	100	77	52	41	9	5	VNP	-	0			499	35	1.2	2.6
06069	4N	3W	-	NW	32	P	Island Ranching	Borrow	Lake Terrace	1,000,000	75	1	1967	Auger	9'-20'	0	0	100		85	75	36	6	NP		0	A-1-b					
06070	3N	3W	NW	SE	4	P	Island Ranching	BG & SG	Beach	1,000,000	20	3	1967	Auger	3'-8'	0	16	100		62	45	11	3	15	NP	.001		142	195	29		
06071	2N	1E	SW	NW	21	P	Ethel M. Kingston	BG & SG	Lake Terrace	100,000	40	2	1970	Cut bank	10'-20'	0	11	100	90	63	52	17	5	VNP	-	.003				32	16.8	6.8
06072	3N	1E	NE	SW	18	City	Farmington City	Borrow	Lake Terrace	50,000	30	2	1970	Cut bank	20'-25'	3		100		92	84	43	5	VNP		0	A-1-b					
06073	1N	1W	SW	NW	12	C	Gibbons and Reed Co.	BG & SG	Lake Terrace	200,000	50	3	1970	Cut bank	10'-15'	5	13	100	82	39	29	12	5	17	NP	.001				22	0.9	3.0

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PITS AND POTENTIAL SITES - TEST DATA SHEET

LOCATION						OWNERSHIP		MATERIAL					TEST DATA - REPRESENTATIVE SAMPLE																			
																SIEVE ANALYSIS																
																BEFORE CRUSHING		PERCENT PASSING AFTER CRUSHING TO 3/4" OR 1" MAX. **										IMMERSION COMPRESSION AVG. P.S.I. LIME			SODIUM SULPHATE LOSS	
PIT OR SITE NUMBER	TOWNSHIP	RANGE	40 ACRE TRACT	QUARTER SECTION	SECTION	P = PRIVATE C = COMMERCIAL CO = COUNTY F = FEDERAL S = STATE	OWNER	USE OF MATERIAL	TYPE OF DEPOSIT	PRESENT ESTIMATED QUANTITY (CU. YDS.)	THICKNESS OF MATERIAL	DEPTH OF OVERBURDEN	DATE SAMPLED *	TYPE OF SAMPLE	DEPTH OF SAMPLE	>3"	>1"	3/4" OR 1"	1/2"	NO. 4	NO. 10*	NO. 40*	NO. 200	LIQUID LIMIT	PLASTICITY INDEX	SWELL	A. A. S. H. O. CLASSIFICATION	WO/	W/	ABRASION 500 REV.	+4	-4

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